

A NEW *SUBZEBRINUS* SPECIES FROM SOUTH GANSU, CHINA (STYLOMMATOPHORA, ENOIDEA)

WU Min, XU Min

School of Life Science, Nanjing University, Hankoulu 22, Nanjing 210093, China; E-mail: minwu1969@yahoo.cn

Abstract A new *Subzebrinus* species is found from South Gansu. The new species is characterized by the straight profile above periphery of body whorl, by the very narrow roundedly quadrangle aperture and by other conchological and genitalian features.

Key words Enoidea, Enidae, *Subzebrinus*, new species, South Gansu.

1 Methods

Living specimens were relaxed by being drowned in water, transferred to 70 % ethanol which was replaced with ethanol of the same concentration after about 72 hours. Shell and genitalia were measured with a calibrated digital vernier calliper and on photo respectively, both to the nearest 0.1 mm. Whorl numbers were counted as described by Kerney & Cameron (1979) and taken with 1/8 (0.125) whorl accuracy. Means were underlined in the text. Measurements of soft parts were taken from the specimens preserved in 70 % ethanol. Directions used in descriptions: proximal = towards the genital atrium; distal = away from the genital atrium.

2 Systematic Account

Stylommatophora Schmidt, 1855

Enoidea Woodward, 1903

Enidae Woodward, 1903

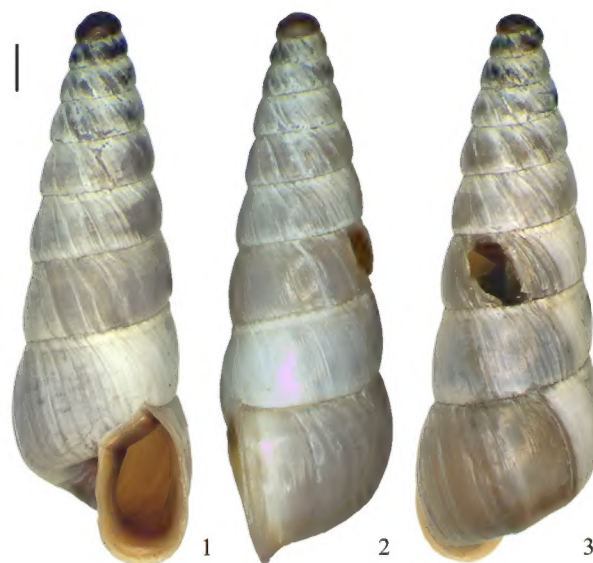
Subzebrinus Westerlund, 1887

Type species: *Buliminus labellus* Martens, 1881; SD Möllendorff, 1901.

Subzebrinus stenostomus sp. nov. (Figs 1 – 5)

Diagnosis. Body whorl most swollen. Profile above periphery of body whorl straight. Aperture roundedly quadrangle; narrow. Peristome reflexed without cuff. Columella oblique axially; with outer edge vertical. Shell 11.8 – 14.0 mm high; 4.4 – 4.9 mm broad; 8.250 – 9.625 whorls. Penial with appendical branch attaching to A-2.

Holotype, HBUMM06667-specimen 1, fully mature shell with soft parts (fma); Wenxian County, South Gansu (33°05'N, 104°21'E; alt. 1 269 m); 9 Aug. 2011; coll. WU Min, XU Qin and P. Buhda. **Paratypes**, HBUMM06667-specimen 2 – 7, 6 fma (one with protoconch lost); the same collection data as holotype. The types are deposited in the Museum of Hebei University, Baoding, China.



Figs 1 – 3. *Subzebrinus stenostomus* sp. nov., HBUMM06667-specimen 1, holotype. 1. Apertural. 2. Lateral. 3. Ab-apertural views. Scale bar = 1 mm.

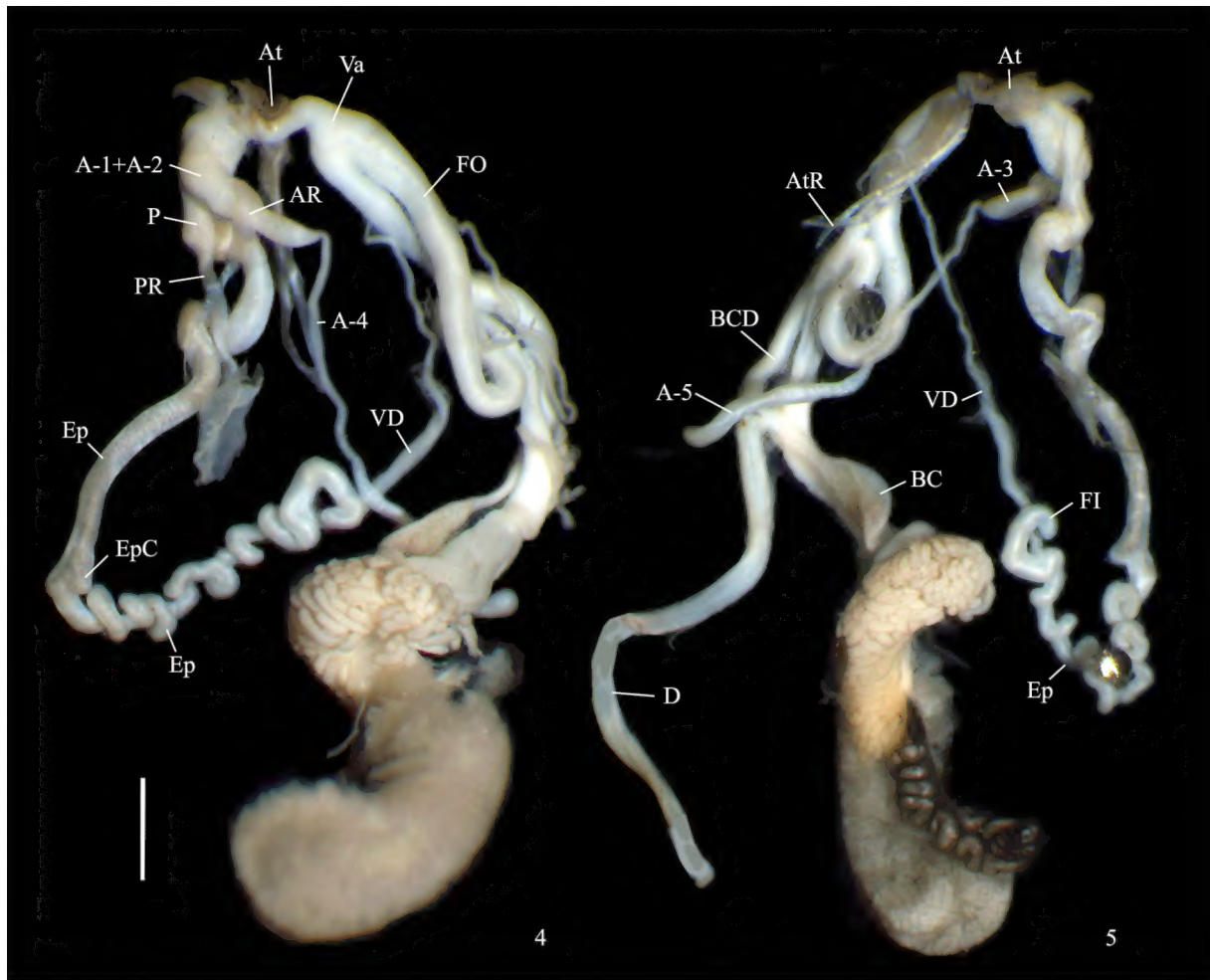
Etymology. After the particular shape of the narrow aperture, the new species gets its name *stenostomus* where “*steno*” and “*stomus*” mean narrow and mouth respectively. The epithet is to be treated as a latin adjective, masculine in gender combined with *Subzebrinus*.

Distribution. South Gansu, known only from type locality.

Shell. High-conic; apex not acuminate; dextral; thin-shelled; solid; opaque; slightly glossy; with most swollen part occurred at body whorl; with 8.250 – 8.792 – 9.625 whorls; 11.8 – 12.7 – 14.0 mm high; 4.4 – 4.7 – 4.9 mm in diam. maj.; height / diameter major ratio 2.47 – 2.73 – 2.96. Growthlines fine and clear. Whorls somewhat convex; speckled on body

This research was supported by the National Natural Sciences Foundation of China (31071882, J1103512) and the Science and Technology Ministry (2006FY120100).

Received 16 May 2012, accepted 26 June 2012.



Figs 4–5. *Subzebrinus stenostomus* sp. nov., holotype, HBUMM06667-specimen 1, genitalia. At. Atrium. AtR. Atrial retractor muscle. AR. Retractor muscle of the appendicular branch. A-1. Most proximal section of penial appendix. A-2. Penial appendix section between and thicker than A-1 and A-3. A-3. Section of the penial appendix connecting proximally A-2 and distally A-4. A-4. Thinnest part of the penial appendix between A-5 and A-3. A-5. Distal part of the penial appendix. BC. Bursa copulatrix. BCD. Bursa copulatrix duct. D. Diverticle. Ep. Epiphallus. EpC. Epiphallic caecum. FI. Flagellum. FO. Free oviduct. P. Penis. PR. Retractor muscle of the penial branch. Va. Vagina. VD. Vas deferens. Scale bar = 1 mm.

whorl; with spiral grooves; not shouldered. Embryonic shell smooth; not polished; with 1.250 – 1.417 – 1.500 whorls. Postnuclear whorls smooth. Suture with a narrow defined zone on beneath whorl. Last whorl ascending immediately behind aperture; rounded at periphery; without smoothed spiral peripheral depression or rugate region. Aperture roundedly quadrangle; its insertions separated; slightly oblique; completely attached to body whorl; not armed; with angular tubercle; 3.8 – 4.0 – 4.1 mm high; 2.0 – 2.2 – 2.4 mm broad. Ratio of shell height to aperture height 2.98 – 3.20 – 3.39. Peristome thickened; expanded; reflexed, without distinct cuff. Parietal callus distinct. Columellar margin reflexed. Columella oblique axially. Outer edge of columellar lip vertical. Umbilicus widely open. Shell uniformly colored; greyish white with darker streaks; protoconch dark brown; aperture yellowish brown. Apical whorls

differently tinted. Measurements of holotype (HBUMM06667-specimen 1): embryonic whorls 1.500; whorls 9.125; height 13.1 mm; diameter major 4.8 mm; aperture height 4.0 mm; aperture width 2.4 mm.

Genitalia. Vas deferens long; proximally swollen; entering epiphallus laterally with distinct demarcation with epiphallus. Epiphallus externally smooth; narrowed towards distal end; distally forming numerous loops. Epiphallic caecum located in middle of epiphallus; blunt apically. Flagellum short; tubular and thicker than connected epiphallus; proximally normal; with tip blunt. Penis evenly thick; without penial sheath; terminally entering epiphallus; thin-walled. Longitudinal pilasters more than two; not fused at epiphallic pore; forming 2 V-shaped structures. V-shaped pilaster with proximal free end more distal than penial retractor insertion; without

papilla formed by fused distal pilasters. Penial process absent. Penial verge absent. Penial appendix short; branched off from penis at some distance from atrium; divided into sections A-1 – A-5; with A-1 fused with A-2; A-3 distinct; A-4 fused with A-5. A-1 short. A-2 internally with longitudinal pilasters; near A-3 internally with a ring of papilla. A-3 opening into A-2 not by papilla. A-5 short; straight. Penial retractor biramous; attached to diaphragm in close proximity to each other; with penial branch attaching to distal penis; with appendical branch attaching to A-2. Additional retractor rather than penial or appendical absent. Muscular band connecting vagina and epiphallus absent. Atrium short; with weak atrial retractor. Free oviduct moderately long; much longer than vagina. Vagina not swollen; straight; not lined with loose, spongy tissue; unpigmented. Bursa copulatrix duct moderately long; proximally straight. Bursa copulatrix in normal size; well defined from stalk. Diverticle normal; longer than reservoir; distally unexpanded. Bursa copulatrix and diverticle distinguishable; forked more distally from their base. Measurements of genitalia: P 2.0 mm; Ep 12.8 mm; Fl 1.1 mm; VD 9.3 mm; Va 1.0 mm; FO 6.7 mm; BCD 3.1 mm; BC 2.0 mm; D 5.9 mm; A-1 + A-2 1.3 mm; A-3 1.0 mm; A-4 + A-5 4.0 mm (HBUMM06667-specimen 1, holotype).

Taxonomic remarks. The new species, based on the straight profile above periphery of body whorl, resembles none of the known *Subzebrinus* species distributed in China (all references listed below, excluding Kerney & Cameron, 1979).

REFERENCES

- Ancey, M. C. F. 1882. Les Mollusques des parties centrales de l'Asie (Chine et Thibet) récoltés par Mr. l'abbé A. David. *Natural. Sicil.* (= *Naturalista Sialiano* ?), 2 (6): 1–17.
- Annandale, T. N. 1923. Zoological results of the Percy Sladen trust expedition to Yunnan under the leadership Professor J. W. Gregory, F. R. S. (1922). Land molluscs. *Journal of the Asiatic Society of Bengal*, 19: 385–422.
- Gredler, V. 1886. Zur Conchylien-Fauna von China. IX. *Stück. Mal. Bl. N. F.*, 9: 1–20.
- Heude, M. 1882. Notes sur les Mollusques Terrestres de la Vallée du Fleuve Bleu. *Mémoires Concernant L'Histoire Naturelle de L'Empire Chinois*, 1: 1–84.
- Heude, M. 1890. Notes sur les Mollusques Terrestres de la vallée du Fleuve Bleu. *Mémoires Concernant L'Histoire Naturelle de L'Empire Chinois*, 3: 133–178.
- Hilber, V. 1883. Recente und im Löss Gefundene Landschnecken aus China. II. SB. *Akademie der Wissenschaften in Wien*, 88: 1 349–1 392, 3 pls.
- Kerney, M. P. and Cameron, R. A. D. 1979. A Field Guide to the Land Snails of Britain and North-West Europe. Collins, London. 288 pp., 24 pls.
- Kobelt, W. 1899–1902. Die Familie Buliminidae. Systematisches Conchylien-Cabinet von Martini und Chemnitz, ed. 2. Band 1, Abtheilung 13, Theil 2, 397–1 051, pls. 71–133. Bauer & Raspe, Nürnberg. [Lieferung 443, pp. 453–508, pls. 77–82 (1899); L. 444, pp. 509–556, pls. 83–88 (1899); L. 463, pp. 725–772, pls. 108–112 (1901); L. 470, pp. 837–884, pls. 124–128 (1902). After F. W. Welter Schultes (1999), Archives of Natural History, 26: 157–203.]
- Möllendorff, O. F. von 1901. Binnen-Mollusken aus Westchina und Centralasien. II. Annuaire du Musée Zoologique de l'Académie Impériale des St. -Petersburg, 6: 299–404, Taf. XII–XVII.
- Pilsbry, H. A. 1934. Zoological Results of the Dolan West China Expedition of 1931, -Part II, Mollusks. *Proceeding of the Academy of Natural Sciences of Philadelphia*, 86: 5–28, 6 pls.
- Schileyko, A. A. 1998. Treatise on Recent Terrestrial Pulmonate Molluscs. Part. 2. Gastrocoptidae, Hypselostomatidae, Vertiginidae, Truncatellinidae, Pachnodidae, Enidae, Sagdidae. *Ruthenica*, 2 (Suppl.): 129–261.
- Sturany, R. 1900. Obrutschew's Mollusken-Ausbeute aus Hochasien. Denkschriften der Kaiserlichen Akademie der Wissenschaften in Wien, Mathematisch-Naturwissenschaftliche Classe. 70: 17–48, 4 pls.
- Wiegmann, F. 1901. Binnen-Mollusken aus Westchina und Centralasien. Zootomische Untersuchungen. II. Die Buliminiden. Annuaire du Musée Zoologique de l'Académie Impériale des St. -Petersburg. 2: 220–297.
- Wu, M 2012. Enidae (Mollusca, Gastropoda, Stylommatophora). Fauna Sinica, Invertebrate volume. Science Press, Beijing. In review.
- Yen, T-C 1935. The Non-marine Gastropods of North China. Part I. Pub. Mus. Hoangho Paiho de T'ien Tsin. 34: 1–57, 5 pls.
- Yen, T-C 1938. Notes on the Gastropod Fauna of Szechwan Province. Sonderabdruck aus: Mitteilungen aus dem Zoolog. Museum in Berlin, 23: 438–457, 1 Taf.
- Yen, T-C 1939. Die Chinesischen Land-und Süßwasser-Gastropoden des Natur-Museums Senckenberg. Abhandlungen der Senckenbergischen Naturforschenden Gesellschaft. 444: 1–234, pls. 1–16.
- Yen, T-C 1942. A Review of Chinese Gastropods in the British Museum. Proceedings of the Malacological Society of London. 24: 170–288, pl. 11–28.
- Zilch, A. 1974. Vinzenz gredler und die erforschung der weichtiere Chinas durch Franziskaner aus tirol. *Archiv für Molluskenskunde*, 104 (4/6): 171–228, pls. 7–9.

中国甘肃南部杂斑螺属（柄眼目，艾纳螺总科）一新种描述

吴 岷 徐 敏

南京大学生命科学学院 210093 南京, E-mail: minwu1969@yahoo.cn

摘 要 描述了栖息于甘肃南部的陆生贝类艾纳螺科 1 新种, 狭口杂斑螺 *Subzebrinus stenostomus* sp. nov.。新种由体螺层周缘以上轮廓线直、壳口呈狭窄长方形、壳口缘反折但不形成卷边、测量特征及生殖系统特征与已各知种不同。

狭口杂斑螺, 新种 *Subzebrinus stenostomus* sp. nov. (图 1 ~ 5)

鉴别特征 体螺层周缘以上轮廓线直。壳口长方形, 狭窄。壳口缘反折; 不形成卷边。螺轴向轴向倾斜; 其外缘垂直。壳高 11.8 ~ 14.0 mm; 壳径 4.4 ~ 4.9 mm; 螺层数 8.250

关键词 艾纳螺总科, 艾纳螺科, 杂斑螺属, 新种, 甘肃南部。
中图分类号 Q969.212

~9.625。交接器收缩肌的附器枝附着于 A-2。

正模, HBUMM06667-specimen 1, 具软体成螺; 甘肃文县 (33°05'N, 104°21'E; 海拔 1 269 m); 2011-08-09; 吴岷、徐沁、Prem B. Buhda 采。副模, HBUMM06667-specimen 2 ~ 7, 6 枚具软体成螺 (1 标本胚螺层破损); 采集数据同正模。模式标本保存于河北大学博物馆。

词源: 新种种名源自其壳口殊狭而得名。“*steno*”和“*stomus*”分别意“狭窄”和“口”。